

Prevailing torque type steel hexagon nuts — Mechanical and performance properties

ICS 21.060.20

National foreword

This British Standard is the UK implementation of EN ISO 2320:1997, incorporating corrigendum November 2007. It is identical with ISO 2320:1997, incorporating corrigendum September 2006. It partially supersedes BS 4929-1:1973 which is declared obsolescent.

The start and finish of text introduced or altered by corrigendum is indicated in the text by tags. Text altered by ISO corrigendum September 2006 is indicated in the text by AC1 AC1.

The UK participation in its preparation was entrusted by Technical Committee FME/9, Bolts, nuts and accessories, to Subcommittee FME/9/10, Male and female prevailing torque fasteners.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Board and comes into effect on 15 May 1998

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English version

Prevailing torque type steel hexagon nuts — Mechanical and performance properties

(ISO 2320:1997)

Ecrous hexagonaux autofreinés en acier —
Caractéristiques mécaniques et performances
(ISO 2320:1997)

Sechskantmuttern aus Stahl mit Klemmteil –
Mechanische und funktionelle Eigenschaften
(ISO 2320:1997)

This European Standard was approved by CEN on 23 October 1997.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

The text of the International Standard ISO 2320:1997 has been prepared by Technical Committee ISO/TC 2 “Fasteners” in collaboration with Technical Committee CEN/TC 185 “Threaded and non-threaded mechanical fasteners and accessories”, the secretariat of which is held by DIN. This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 1998, and conflicting national standards shall be withdrawn at the latest by May 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 2320:1997 was approved by CEN as a European Standard without any modification.

NOTE Normative references to International Standards are listed in Annex ZA (normative).

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Prevailing torque type steel hexagon nuts — Mechanical and performance properties

Écrous hexagonaux autofreinés en acier — Caractéristiques mécaniques et performances



Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 2320 was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 1, *Mechanical properties of fasteners*.

This third edition cancels and replaces the second edition (ISO 2320:1983), which has been technically revised.

Annex A and Annex B form an integral part of this International Standard.

Annex C is for information only.

Descriptors: Fasteners, nuts (fasteners), self-locking nuts, hexagonal nuts, specifications, materials specifications, mechanical properties, performance, proof loads, tests, designation, marking.

1 Scope

This International Standard specifies the mechanical and performance properties for prevailing torque type steel hexagon nuts (including those with flange) when tested over an ambient temperature range of 10 °C to 35 °C. Properties will vary at higher and lower temperature.

It applies to prevailing torque type nuts

- with nominal thread diameters up to and including 39 mm;
- of triangular ISO thread according to ISO 68;
- with diameter/pitch combinations according to ISO 261;
- with thread tolerances 6H according to ISO 965-2;
- with specific mechanical requirements;
- with dimensions as specified in product standards provided they make reference to this International Standard;
- within the temperature range – 50 °C to + 300 °C for all metal type nuts;
- within the temperature range – 50 °C to + 120 °C for non-metallic insert type nuts¹⁾

It does not apply to nuts requiring special properties which may require special materials or coatings to improve

- weldability;
- corrosion resistance;
- performance outside the above specified temperature ranges.

Prevailing torque performance decreases with increasing re-use. The nut user should consider the implications of decreased performance prior to re-use.

NOTE Information on torque/clamping force performance requirements and testing are given in the Annex C. These functional requirements and the accompanying test procedure are still under discussion and cannot be specified mandatorily for the time being.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 68-1:—, *ISO general purpose screw threads — Basic profile — Part 1: Metric screw threads*²⁾.

ISO 261:—, *ISO general purpose metric threads — General plan*³⁾.

ISO 898-1:—, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs*⁴⁾.

ISO 898-2:1992, *Mechanical properties of fasteners — Part 2: Nuts with specified proof load values — Coarse thread*.

ISO 898-6:1994, *Mechanical properties of fasteners — Part 6: Nuts with specified proof load values — Fine pitch thread*.

ISO 965-2:—, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose bolt and nut threads — Medium quality*⁵⁾.

ISO 4042:—, *Fasteners — Electroplated castings*⁶⁾.

ISO 4753:—, *Fasteners- End of parts with external metric ISO thread*⁷⁾.

ISO 6506:1981, *Metallic materials — Hardness test — Brinell test*.

ISO 6507-1:—, *Metallic materials — Vickers hardness test — Part 1: Test method*⁸⁾.

ISO 6508:1986, *Metallic materials — Hardness test — Rockwell test (scales A – B – C – D – E – F – G – H – K)*.

¹⁾ By careful choice of non-metallic materials higher service temperature properties can be attained by agreement between user and manufacturer.

²⁾ To be published. (Revision of ISO 68:1973)

³⁾ To be published. (Revision of ISO 261:1973)

⁴⁾ To be published. (Revision of ISO 898-1:1988)

⁵⁾ To be published. (Revision of ISO 965-2:1980)

⁶⁾ To be published. (Revision of ISO 4042:1989)

⁷⁾ To be published. (Revision of ISO 4753:1983)

⁸⁾ To be published. (Revision of ISO 6507-1:1982; ISO 6507-2:1983; ISO 6507-3:1989; ISO 409-1:1982; ISO 409-2:1983 and ISO/DIS 409-3)